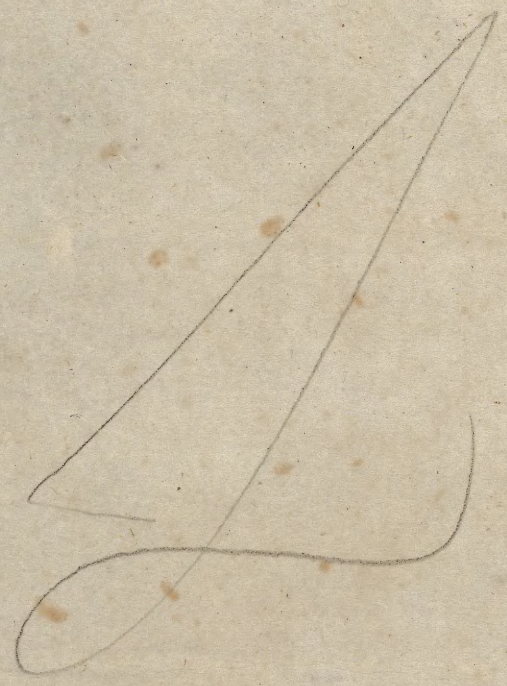

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DESCRIPTION

OF THE

GENUS CINCHONA.

DULAU & Co
37, SOHO SQUARE,
LONDON, W.

GENUS CINCHONA

OF LINN.

DESCRIPTION

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Lambert, A. B. See dedication page.

Rare Book
QK495
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L35
1797

A

DESCRIPTION

OF THE

GENUS CINCHONA,

COMPREHENDING

THE VARIOUS SPECIES OF VEGETABLES FROM WHICH
THE PERUVIAN AND OTHER BARKS OF A
SIMILAR QUALITY ARE TAKEN.

ILLUSTRATED BY

FIGURES OF ALL THE SPECIES HITHERTO DISCOVERED.

TO WHICH IS PREFIXED

PROFESSOR VAHL'S DISSERTATION ON THIS GENUS,

READ BEFORE THE SOCIETY OF NATURAL HISTORY AT COPENHAGEN.

ALSO

A DESCRIPTION, ACCOMPANIED BY FIGURES, OF A NEW GENUS

NAMED

HYÆNANCHE: OR, HYÆNA POISON.

Mo. Bot. Garden,
1896.

LONDON:

PRINTED FOR B. AND J. WHITE, AT HORACE'S HEAD, FLEET-STREET.

M.DCC.XCVII.

PROFESSOR VAHL'S

DISSERTATION

ON THE

GENUS CINCHONA.

GENUS CINCHONA.

ON THE

DISSERTATION

PROFESSOR AIRIS.

TO THE

LINNÆAN SOCIETY OF LONDON,

AND TO

SIR JOSEPH BANKS, BART.

KNIGHT OF THE MOST HONOURABLE ORDER OF THE BATH,

AND

PRESIDENT OF THE ROYAL SOCIETY,

BY WHOSE LIBERAL AND FRIENDLY COMMUNICATIONS,

ACCOMPANIED BY

ORIGINAL DRAWINGS AND SPECIMENS FROM HIS HERBARIUM,

THIS WORK HAS BEEN SO AMPLY ENRICHED,

IT IS NOW INSCRIBED, WITH THE GREATEST RESPECT,

BY

AYLMER BOURKE LAMBERT,

FELLOW OF THE ROYAL AND ANTIQUARIAN SOCIETIES, ETC.

VICE-PRESIDENT OF THE LINNÆAN SOCIETY.

PREFATORY ADVERTISEMENT.

THE ſeveral ſpecies of the genus Cinchona, from which the Peruvian and other Barks of a ſimilar quality are taken, have been hitherto but little known to the Botaniſts of Europe; and even the principal ſpecies, the Cinchona Officinalis, ſo long eſtabliſhed in the practice of Phyſic as one of the happieſt of modern diſcoveries, was but obſcurely known till about the year 1738, when Monſ. Condamine elucidated its Hiſtory,

and gave its Botanical Characters with the neceſſary degree of preciſion.

Since that period ſo greatly has the ſcience of Botany been enriched by the diſcoveries of Naturaliſts, that no leſs than twelve ſpecies of Cinchona are now found to exiſt. Of theſe, ſome of the principal have been excellently deſcribed by Profeſſor Vahl of Copenhagen, of whoſe Diſſertation on the ſubject we here give a tranſlation; with the addition of other ſpecies ſince diſcovered; accompanied by figures taken from the ſpecimens themſelves, preſerved in the Herbarium of Sir Joſeph Banks, and aſſiſted by drawings in his poſſeſſion.

By this means perſons reſiding in thoſe parts of the world in which any ſpecies of the genus

nus may occur, will be enabled to aſcertain, whether what they have diſcovered be new, or already deſcribed; and thus the moſt intereſting additions may probably be made to the medical treaſures we at preſent poſſeſs in this highly important genus.

IN the courſe of printing this work, ſome few inaccuracies have eſcaped the Author's obſervation :—it is neceſſary to remark the following :

Page 13. l. 3, from bottom, for a *Mr. Wright*, read *Dr. Wright*. From this gentleman, who is lately returned to the Weſt Indies, many more valuable diſcoveries in Botany may be expected.

Page 30. l. 5, from bottom, for 46 read 56.

Page 38. l. 15, for *Beavais* read *Beauvois*.

In page 39. l. 19. after the word *lions*, add the following note: "Meaning the *Puma*, ſometimes called the American lion—a very different ſpecies from the common lion."

THE want of an exact knowledge from what plant this or that particular medicine is taken, is not one of the leaſt cauſes of the preſent imperfection of the Hiſtory of Phyſic; and notwithſtanding the extenſiveneſs of commerce in theſe latter times, and the opportunities thereby afforded to the cultivators of Natural Hiſtory of examining the productions of various countries in their native ſoil, and even in regions from whence ſelf-intereſt had before excluded them, we are ſtill ignorant from whence ſeveral medicines are prepared, which we every day uſe in the practice of Phyſic. To this ignorance muſt likewiſe be attributed that uncertainty which prevails in the operations of particular medicines, and the different opinions which have prevailed relative to their effects on the human body; and this relates not only to ſuch vegetables as are brought from diſtant regions, but even to thoſe which are natives of our own country. From the hotter climates we receive ſeveral medicines, which, though coming from different places, are called by the ſame title; and many European plants are in one place commended for their ſingular efficacy,

while in another they are found to be quite ineffectual; which difference has been owing to having gathered roots, leaves, &c. of a very different plant from the real one ſo highly eſteemed in ſome particular ſpot. This error is the eaſier to commit, as it often happens that the names of plants growing in the northern parts of Europe are often given to ſeveral of thoſe of the ſouth, though the plants themſelves are very different, not having been properly collated. As a proof of this I will adduce only two inſtances: The Radix Bugloſſi in Italy is taken from a very different plant from our own (which is the Anchuſa officinalis), a plant which I have found in but few places of the ſouth of Europe, and which is in general rare. On the contrary, the ſpecies mentioned by Profeſſor Retzius in the firſt faſciculus of his Obſervations, p. 12, under the name of Anchuſa Italica, is there full as common as the A. officinalis with us, and is accordingly there made uſe of; and though it differs very much from ours, yet it is conſidered by moſt of the botaniſts of the ſouth of Europe as the ſame plant with the above northern one, which they have never ſeen, and of courſe know not how to diſtinguiſh. In the garden of an hoſpital at Genoa, the Symphytum tuberoſum was cultivated for the uſe of the apothecaries inſtead of the officinale, which is the true Conſolida major of the Materia Medica.

I paſs over many ſimilar examples of different plants being conſidered as the ſame in different places, even though

though much more diſſimilar than the abovementioned. But if ſuch miſtakes are committed by thoſe from whom a ſolid and exact knowledge of the proper diſtinctions of plants might be expected, what may we not apprehend to be the caſe, when the gathering of them is committed to the care of perſons ſtill leſs able to diſtinguiſh ſuch productions? Their knowledge of plants conſiſts in accidental diſtinctions, and is often confined to their being accuſtomed to find them in ſome particular place or other; a circumſtance which is often capable of giving two different plants a ſimilar aſpect. As this happens every day, it is unneceſſary to inſiſt upon it. We need only ſearch the heaps which are brought to the apothecaries' ſhops, in order to diſcover plants of very different ſpecies from thoſe preſcribed by phyſicians. How greatly would the knowledge of medicine be confirmed, and how many excellent remedies, grounded on the experience of all ages, would be in our poſſeſſion, if our anceſtors had handed down to us as ſure characteriſtics of the plants they made uſe of, as the praiſes of their qualities! Our Materia Medica would not then have been filled with a number of uſeleſs articles; and the conjectures of latter ages about the medicines recommended by the ancients would have been ſpared, while the knowledge of efficacious medicines would have been rendered permanent and certain for the benefit of mankind. After the lapſe of centuries, mankind have employed all their induſtry to find out the plants mentioned by Dioſcorides and others of the ancients, and at length have diſcovered

that the purſuit was to no purpoſe. They were obliged to leave the plants of the ancients, and their virtues, in the ſame degree of obſcurity in which they were involved, and to begin de novo the experiments on their medical qualities. All that was gained by their ſearch was, that of about five hundred plants mentioned by Dioſcorides, there were hardly twenty known to a certainty, and of them only ſuch as can be conſidered as culinary or dietetic plants. The multitude of uſeleſs and uncertain remedies with which the apothecaries' ſhops were filled, and of which, even in our times, we have not been able to rid them, is to be charged to thoſe examinations, and proved the only conſequence of their labours. We need only mention Hellebore as a proof of this. The variety of opinions among the ancients, relative to the plant to which Sneezewort belongs, which is ſo highly commended by the ancients, added to the ſtores of medicinal ſhops no leſs than ten ſorts of roots, ſome entirely uſeleſs, and others very different in quality from that of the ancients, which is yet not certainly known. But why ſhould we not exculpate both the ancients and their expoſitors, who lived in very different climates? Botany, in their time, had not been reduced to the form of a ſcience; it is our own age that has given it order and certainty. But notwithſtanding this advantage over the ancients, and the opportunity afforded us of examining many of the remedies which the vegetable kingdom affords, even in their native climates, yet we are ſtill in a ſtate of uncertainty with reſpect to many which are in frequent uſe, as to

the

the claſs or family to which they ought to be referred, and with reſpect to ſome we are entirely ignorant. Much light, however, has of late years been thrown on this ſubject, and we have learnt to a certainty the plants from which various medicines are procured; having infallible marks or characters by which to diſtinguiſh their affinities: our experience therefore will not be loſt to poſterity as that of the ancients has been to us, but will remain as long as the plants themſelves. No one will deny that the knowledge of plants, grounded on their eſſential parts, which are conſtant and obvious, is the ſureſt method of preſerving the knowledge of their qualities, when once diſcovered, from periſhing, as well as of determining any doubts or diſputes relative to that point. The ſight is unqueſtionably leſs liable to uncertainty than the ſmell and taſte, which are capable of being perverted by ſeveral accidents in ſuch a manner as to give uncertain indications; and how many plants are there, which, though ſimilar in ſmell and taſte, are yet very different in their effects! To this may be added the impoſſibility of explaining by words theſe ſenſations to others: it is ſurely far eaſier to inform people through the medium of ſight. It may ſtill be objected, perhaps, that colour, a particular afforded by our ſight, is ſtill an uncertain character, and is known to vary. Had we no other characters but the internal ones by which we might communicate to poſterity the knowledge of thoſe remedies from which we have received ſo much advantage, they would become both uncertain, and in a little time as unprofitable to them as

as thoſe of the ancients are to us; they would ſoon be commuted for others; our experiments would be laughed at, and poſterity would loſe the benefit of our diſcoveries. Theſe are not new truths, but ſuch as are well known, and have often been demonſtrated by others; yet they are important, as they ſerve to evince the uſes of botanical ſcience. A certain and exact knowledge of plants from which medicines are taken, is ſtill more neceſſary with reſpect to ſuch plants as are not cultivated, but grow wild. By frequent gathering, theſe plants are liable to be too much diminiſhed, ſo as not to afford a ſufficient ſupply when requiſite, and even to be quite extirpated from the places in which they were firſt collected. If then we did not know the plant from which ſuch a medicine was prepared, we ſhould not be capable of aſcertaining by ſearch, whether nature might not have produced it in other ſpots; and if we were not able to find it, we muſt either be without the deſired remedy or ſpecific againſt particular diſeaſes, or elſe even wiſh to have it leſs known, on account of its ſmall quantity. The loſs would be the more felt, as the diſcoveries of ages might perhaps ſcarcely exhibit any thing that would ſo completely anſwer our purpoſes. An extenſive knowledge of the vegetable kingdom, acquaintance with the natural affinities of plants, would perhaps be the only means of leading to the diſcovery, and on ſuch an occaſion might compenſate for what we had loſt; ſince, if we wiſh to find a remedy that moſt nearly approaches to any particular one, it can ſcarcely be looked for amongſt ſuch as Nature has ſet

at a wide diſtance from it. The nearer the ſeveral parts of plants approach to each other in point of reſemblance, there is ſo much the greater reaſon for ſuppoſing a ſimilarity of their virtues. He who underſtands nature will hardly doubt of this: daily experience furniſhes proofs of it, not only amongſt the vegetable tribes, but alſo in the other kingdoms of nature, and this in proportion to the natural affinities.

The genus of plants which I have now the honour to propoſe to the Society, increaſed by the deſcriptions of ſome of the leſs known ſpecies, will ſerve as a further proof of what has been advanced.

Among the many excellent medicines which have reached our knowledge ſince the diſcovery of the New World, the Peruvian Bark deſerves undoubtedly the firſt place. It has been tried in vain to find a ſubſtitute for it, ſcarcely any thing having been yet diſcovered which might ſuperſede its uſe. The obſtacles which it met with before it was univerſally adopted, and the different opinions relative to its effects, are ſufficiently known. As they do not belong to my ſcope, it is ſuperfluous to treat of them: the cauſe of the difference in the experiments made with the Peruvian Bark muſt be aſcribed in part to the frauds which are practiſed in mixing it with other ingredients of ſimilar colour and taſte, though very different in operation, and perhaps even of a contrary nature and of a pernicious effect. Men, while anxious in ſupport

port of their own opinions, did not endeavour to diſcover the true ſource of theſe variations: it was long before the diſtinctive characters, by which the genuine was to be diſtinguiſhed from the ſpurious, were attended to. If a more accurate knowledge of the trees the bark of which thus increaſed the quantity had not been wanting, or if the tree from which the true bark was taken had been known, we ſhould have been, at leaſt in part, better able to judge in the matter. Attempts have been made, even till the preſent time, to diſcover ſome other remedies which might ſupply its place, but without ſucceſs: this enquiry is ſo much the more neceſſary, ſince, according to Monſ. Condamine's account, publiſhed more than half a century ago in the Mem. de l'Academie des Sciences, for the year 1738, p. 324 (edit. Amſterdam), we may ſome time or other be neceſſitated to loſe the Peruvian Bark; the trees being at that time ſo much diminiſhed in Peru by frequent decortication, that it was apprehended that in future even a ſmall quantity could ſcarce be obtained from them. Later experience has ſhewn that this opinion was not entirely void of foundation. The accounts which I have been enabled to collect during my reſidence in Spain, all agree in affirming that the tree is nearly extinct in thoſe places where it was formerly found in the greateſt abundance: yet, though it has not been diſcovered in any other region, our fear is vaniſhed as to our one day loſing ſo neceſſary a drug. Various botaniſts, who in theſe latter times have travelled in the Weſt Indies to inveſtigate the natural productions of that part of the world, have found

ſeveral

ſeveral ſpecies of this genus, which not only reſemble the firſt diſcovered ſpecies as to their qualities, but which even ſeem, in ſome reſpects, to ſurpaſs it.

The Peruvian Bark was made uſe of during a whole century, without its being known from what tree it was taken; and this ignorance would have ſtill continued, had not ſome botaniſts obtained an opportunity of ſeeing it in its native country. The firſt whom we have to thank for certain and authentic information concerning the genus, is Monſ. Condamine. It continued, however, almoſt inacceſſible to us after that time, its native country not being eaſily viſited by naturaliſts. Few botaniſts have ſeen it, and all that we know of it is confined to what Monſ. Condamine has related. The various figures we are in poſſeſſion of are all borrowed from him, though his repreſentation cannot be eſteemed a perfect one, and has the appearance of being in ſome points a little artificial. From what I ſhall proceed to mention, it will be evident that Linnæus never ſaw it, but availed himſelf of Condamine's deſcription and figure to eſtabliſh the characters of the genus. From the time of Condamine to that of Jacquin's viſit to the Caribbee Iſlands, only one ſpecies was known. Jacquin diſcovered another, which was regarded by Linnæus as dubious, differing in ſome inconſiderable points from the Peruvian ſpecies. The fruit of the Caribbean ſpecies was not at that time known; but having ſince been examined, it clearly belongs to the ſame genus. Mr. Forſter diſcovered a third

ſpecies in the iſlands of Tongataboo and Eaoree in the South Sea. A fourth was ſent from Martinique by Monſ. Badier, which is known by the name of Quinquina Piton. Profeſſor Swartz, who ſome years ago made a voyage to the Antilles, beſides increaſing the vegetable catalogue of thoſe parts with eight hundred and fifty new ſpecies, notwithſtanding the prior viſits of thoſe indefatigable botaniſts Plumier, Sloane, Jacquin, and Brown, enriched the genus Cinchona with two new ſpecies, of which one was found in Hiſpaniola, and the other in Jamaica; which latter, however, he deſcribed from a ſpecimen in Sir Joſeph Banks's collection. As an addition to all theſe, I have the honour to exhibit three more, of which one is changed with the Peruvian, and the two others I look upon as unknown, not having been able to find them any where deſcribed. The genus is conſequently increaſed to nine ſpecies. All the ſpecies which conſtitute this genus agree in the following circumſtances, viz. The trunk is a tree: the bark of the branches is of a dark brown-red colour, in ſome ſpecies covered with ſoft hairs towards the extremities, but in moſt ſpecies without: at the bottom theſe branches are round, and frequently of a whitiſh grey, but at the top they become imperceptibly tetragonous: thoſe which bear flowers are diſtinguiſhed from the others by being alternately compreſſed to the top: the leaves are oppoſite; inſerted to the branch by a ſhort pedicle; their edges are ſmooth, or entire, without any denticulations; their lower ſurface is ſomewhat more venous, and ſometimes the oblique fibres are covered with ſoft hair; the

upper ſurface is generally without hair: the ſubſtance of the leaves is ſomewhat membranaceous, and bears a reſemblance to that of coffee-leaves: at both ſides, betwixt the leaves, is a ſtipule, which is cloſely adpreſſed to the branch: the peduncles ſit commonly at the top of the branches of the umbel, theſe branches being always divided into three, of which the laſt bears one flower only. Two ſpecies have the flowers ſitting in the angle formed by the leaves with the branches, and of theſe one ſpecies has only one flower on the peduncle. Where the peduncle is divided into more ramifications, there are two ſmall bracteæ at the larger, and one at the ſmaller. The calyx is one-leafed, above the germen, corolliform, in the ſame manner as in plants that have oppoſite leaves and ſtipules. Sometimes the calyx is only a kind of margin, but always divided into five ſmall points, and much ſhorter than the corol: the corol is funnel-form, monopetalous, divided into five parts; the ſtamina five, inſerted at the middle of the interior part of the tube, being either ſhorter than the tube, or of equal length with the corol; they are ſlender and erect: the germen is conical, and bent down, with a pointed tip; the ſtyle is thread-form, of the length of the ſtamina; the ſtigma thicker, and ſomewhat bipartite: the fruit is an oblong capſule, opening in two parts. From both corners of each part there is a diſſepiment ſeparated in the middle with a crevice: the ſeeds are compreſſed, and ſurrounded with a membranaceous margin. All the ſpecies are natives of the New World, one excepted, which was diſcovered by

Dr. Forſter in the South Sea iſlands. In the other parts of the world there has as yet been no ſpecies diſcovered. Three ſpecies only are found on the continent of America, and the reſt in the Caribbean iſlands: they ſeem to prefer mountainous ſituations.

The genera moſt allied to Cinchona are Manettia, Rondeletia, Macrocnemum, Bellonia, Portlandia, and ſome others; and theſe ſeem to connect the laſt diviſion of the Stellatæ of Linnæus, ſuch as Coffea, Ixora, Pavetta, with the family of Contortæ, to which Cinchona, as to the fruit, is nearly related; but it differs in having the fruit below the calyx, and in the diviſions of the corol not being contorted into a ſpiral before their expanſion.

The ſpecies of this genus are as follows:

1. Cinchona officinalis. This is the ſpecies from which is taken the genuine Peruvian Bark, and is that which was firſt diſcovered: it is the ſpecies which has given the character of the genus, and is conſequently that which Linnæus mentions in the old editions of his Syſtema Naturæ, and in the 6th edition of his Genera Plantarum.

2. Cinchona pubeſcens. So named from the pubeſcent appearance on the backs of the leaves: its native place the ſame as the foregoing. From the ſhort and incomplete deſcription

deſcription given by Condamine of a ſpecies of Cinchona growing on the ſummits of mountains, and of a whitiſh appearance, it ſhould ſeem to be this.

3. C. macrocarpa. So named from the ſuperior ſize of the fruit in compariſon to that of the others. This is the ſpecies diſcovered by Mutis in large woods in Santa Fé in America: it is undoubtedly this ſpecies which Linnæus deſcribes in the twelfth edition of the Syſtema Naturæ. On comparing Linnæus's deſcription with that of Condamine, and the figure given by him of C. officinalis, it is evident that it by no means agrees with it; but on the contrary it perfectly accords with my own of the C. macrocarpa: and of this I am the more convinced, as Mutis never ſent ſpecimens into Europe of the C. officinalis, it being never found at Santa Fé; and laſtly, that the ſpecimen preſerved in the Linnæan collection is C. macrocarpa, and not officinalis: its bark is white, and rather more bitter than that of the officinalis. Some years ago a quantity of it was imported to Madrid, and was tried by ſeveral phyſicians, who all agreed in declaring it equal to the Peruvian.

4. C. Caribæa. Deſcribed in the Philoſophical Tranſactions by a Mr. Wright.

5. C. floribunda, or Quinquina Piton of Monſ. Badier. The bark of theſe two ſpecies is found of equal efficacy in inter-

intermittents. They promote a tendency to vomition, and are alſo purgative. Several perſons in England have aſſured me that theſe are preferred in the Weſt India iſlands to the Peruvian. Both theſe ſpecies were ſent me from St. Croix.

6. C. corymbifera. This, according to Forſter, has the greateſt reſemblance in appearance and taſte to the officinalis or Peruvian: a deſcription at large is given of it in the Nov. Act. Upſ. tom. 3. p. 176.

7. C. brachycarpa, and

8. C. lineata,

Are both ſo nearly allied to C. floribunda, that it is difficult to find ſufficient diſtinctions between them, and there is reaſon to expect the ſame effect from them as from the others. Nothing but repeated experiments can determine whether the ſeveral kinds are equal to the Peruvian, or which may in reality deſerve the preference; but from the experiments which have already been made, it clearly appears that they are far better ſubſtitutes than any other Barks which have been occaſionally made uſe of for that purpoſe.

CIN-

Cinchona officinalis.

J.Barlow fculp.

CINCHONA,

So named from the Counteſs del Cinchon, Lady of a Spaniſh Viceroy, whoſe cure is ſaid firſt to have brought the Peruvian Bark into reputation.

Lin. Gen. p. 228. Reich. No. 245. Schreb. 301. Gærtn. t. 33. Juſſ. 201.

Quinquina Condam. Act. Gall. 1738.

CHARACTER ESSENTIALIS.

Capſula (infera) bilocularis, bipartibilis; valvulis diſſepimentis parallelis interne dehiſcentibus.—Swartz. in Act. Holm. 1787, p. 119.

CHARACTER NATURALIS.

Cal. Perianthium monophyllum, ſuperum, breve, perſiſtens, quinquedentatum: dentibus acutis.

Corolla monopetala, infundibuliformis, quinquefida. Tubo longo, obſcure angulato: laciniis lanceolatis vel linearibus, tubum æquantibus.

Stam. Filamenta quinque in medio tubi.

Antheræ lineares, erectæ.

Piſtil.

Piſtil. Germen inferum, turbinatum, obſcure angulatum. Stylus longitudine ſtaminum.

Stigma craſſum, bifidum vel integrum.

Per. Capſula calyce coronata, bipartibilis, intus medio dehiſcens, diſſepimento parallelo.

Semina plura, oblonga, compreſſa, ala membranacea cincta.

HABITUS GENERIS.

Caulis arboreus. Rami teretes, ſuperne obſcure tetragoni; floriferi alternatim compreſſi.

Folia oppoſita, indiviſa, integerrima. Stipulæ foliis interpoſitæ, ramis adpreſſæ. Infloreſcentia in pleriſque paniculata, brachiata, pedunculis trifidis.

SPECIES.

Floribus tomentoſis, ſtaminibus incluſis.

C. officinalis—Cinchona foliis ovato-lanceolatis, glabris, capſulis oblongis. Tab. 1.

Quinquina Condam. in Act. Pariſ. 1738, cum tab.

Cinchona officinalis. Lin. S. V. ed. 10. p. 929. Spec. Plant.

Plant. p. 244. Vahl. Act. Soc. Hiſt. Nat. Havn. faſc. 1. p. 17. tab. 1. Vahl. Symbol. Botan. faſc. 3. p. 37. Miller Dict. ed. a Martyn, vol. 1. Diſſ. Med. Inaug. de Cinchona off. Lin. per Ricar. Pulteney, cum fig. Reich. 1. 476. Gærtn. Fruct. 1. 169. Swartz. Obſer. 72. Commers Noric. 1744, p. 217. t. 1. f. 3. Plenck. Ic. t. 131. Wood. Med. Bot. 546. t. 200. Lamark. Encycl. pl. 164. f. 1. Lin. Mat. Med. N° 71. Quinquina Geoffr. Mat. Med. tom. 2. p. 180. Alſton. Ind. Med. Tripl.—Cortex Peruvianus, Peruanus, China Chinæ, Quinquina officin. Dalei Pharm. ed. 3. p. 291. Lewis Mat. Med. p. 427. China Chinæ, Hoffman Suppl. 11. par. 2. Mat. Med. p. 166. Vogel Hiſt. Mat. Med. p. 287. Arbor febrifuga Peruviana Raii Hiſt. Plant. tom. 2. p. 1796.

Habitat in Loxa Peruviæ.

Cin. off. Rami cortice fuſco-purpuraſcentes, ſæpe e rimis tranſverſis obliquis ſcabri, cicatriſati poſt caſum foliorum.

Folia petiolata, ad apices ramorum approximata, in ramis floriferis remota, patentiſſima, bipollicaria, ovata vel ovato-lanceolata, acuta, lævia, utrinque glabra, ſupra ſubavenia, oblique nervoſa, nervis inferioribus oppoſitis; ſubtus paulo pallidiora, venoſa.

Petioli ſemipollicares, ſupra canaliculati, ſubtus convexi, verſus baſin rugoſo-ſcabri.

Stipulæ utrinque binæ, minutæ, acutæ.

Panicula terminalis, patens, trichotoma. Pedunculi et pedicelli leviter tomentoſi: Pedicelli uniflori.

Bractea minuta ad baſin et in medio pedicelli.

Calyx margo ſuperus, quinquedentatus: dentibus breviſſimis.

Corolla vix unguicularis, extus tomentoſa: laciniis acutis, intus lanatis, tubo brevioribus.

Filamenta tubo breviora. Antheræ longitudine tubi.

Germen tomentoſum. Stigma apice incraſſatum ſubbifidum.

Capſula oblonga, glabra, ſemipollicaris, lineis obſcuris elevatis.

The plate here given of the Cinchona officinalis Lin. appeared ſome years ago annexed to a publication entitled De uſo e abuſo das Minhas agoas de Inglaterra, Londres, 1756, by Jacob de Caſtro Sarmento—but without its hiſtory, or any account of it: and it is ſomewhat extraordinary how it came into the publiſher's poſſeſſion. It ſeems to be very little known, and has not been quoted

quoted by any author, I believe, except Dr. Pulteney, in his Diſſ. de Cinchona, and who informed me that his figure was communicated to him by Dr. Hope of Edinburgh.—Mr. Hawkins, now living at Dorcheſter, Dorſet, a contemporary of Sir Hans Sloane, and with whom he lived for ſome time in the latter part of his life, was ſo obliging as to favour me with an impreſſion of this plate, accompanied with the following letter. He alſo favoured me with an account of the Cinchona by Condamine, and which ſeems the ſame already publiſhed by Condamine himſelf in the French Tranſactions.

Mr. HAWKINS's LETTER.

Dorcheſter, Oct. 12, 1795.

DEAR SIR,

I RECEIVED the favour of yours, and in return ſhall give you all the information I am able concerning the Cinchona. The ſpecimens which I made the drawing from came incloſed in a large quantity of the bark, ſeveral pieces of wood with the bark on, and branches of the leaves in flower and ſeed, packed up in a cow or ox-hide, as a preſent from Monſ. Condamine (then reſiding in Peru) to Dr. Cromwell Mortimer, Correſponding Secretary to the Royal Society in the year 1740. The ſpecimens were in a dried crumpled ſtate, which I expanded by means of warm water, in order to complete the drawing. The plate was engraved at the expence of the Royal

 Society,

Society, has been ſince loſt, and cannot be found, as Sir Joſeph Banks told me when in London.—Alſo were included in the ſame parcel ſpecimens of the plant with the three leaves along-ſide of the main ſtalk, as repreſented in the drawing * you had before of me with the kidney-ſhape ſeed, and which is deſcribed by Monſ. Condamine in the Memoirs of the Academy of Sciences in his account there of the Jeſuits Bark; which was firſt uſed for curing intermittents before the preſent was known. I wiſh the above may prove of uſe to you.

I am, Dear Sir,

Your moſt obedient, humble Servant,

J. HAWKINS.

* The drawing, with its deſcription, was by me preſented to the Linnæan Society, and will appear in the 3d vol. of their Tranſactions.

CIN-

Cinchona pubescens.

J. Barlow, sculp.

CINCHONA PUBESCENS, Pl. 2.

Cinchona foliis ovatis basi elongatis, subtus pubescentibus, capsulis cylindricis. Vahl. in Act. Havn. 1. 1. p. 19. t. 2. Mill. Dict. Mart.

Habitat in Peru. Amicissimo viro cel. Dn. Jussiæo hanc debeo.

Rami superne pubescentes.

Folia petiolata, spithamæa, palmam lata, obtusa, basin parum per petiolum decurrentia, tenera, venosa, subtus nervis pubescentia.

Petiolus bipollicaris, pubescens, subtus convexus.

Panicula terminalis, brachiata, pubescens. Pedunculi partiales bistrifidi: Pedicellis brevissimis unifloris. Bracteæ minutæ ad basin pedicellorum.

Calyx margo superus, quinquedentatus: dentibus minutis, ovatis, acutis.

Corolla præcedentis. Tubus medio incrassatus.

Stamina & Pistillum ut in C. officinali.

Capsula cylindrica pollicaris, utrinque parum angustata.

CINCHONA MACROCARPA, PL. 3.

Cinchona foliis oblongis ſubtus pubeſcentibus coſtatis.

Cinchona officinalis. Lin. S. V. ed. 12. p. 164. deſcriptio.

Cinchona officinalis foliis ellipticis ſubtus pubeſcentibus, corollæ limbo lanato. Lin. Suppl. p. 144. S. V. edit. 14. p. 213. Vahl. in Act. Havn. 1. 1. p. 19. t. 2. Mill. Dict. Mart.

Habitat in regno Santa Fé. Dedit. Dn. Ortega.

Rami articulati, craſſitie pennæ cygneæ, villoſo-tomentoſi.

Folia petiolata, pluſquam palmaria, oblonga, juniora elliptica ſubcoriacea, ſupra nitida, glabra, ſubtus pubeſcentia, coſtata: coſtis villoſo-tomentoſis. Juniora ſupra piloſa, præſertim ſecundum nervos.

Petiolus pollicaris, ſupra planus, ſubtus convexus.

Stipulæ lanceolatæ, deciduæ, petiolo longiores, baſi connatæ, intus glabræ.

Panicula

Cinchona macrocarpa.

J. Barlow, sculp.

Panicula terminalis, trichotoma, pubeſcens.

Pedunculi compreſſi triflori ſeſquipollicares.

Flores ſubſeſſiles.

Bractea lineari-lanceolata utrinque ad diviſuras pedunculi univerſalis, pollicaris, & alia ſubulata ad baſin ſinguli floris, parva.

Calyx campanulatus, pubeſcens, intus ſericeus, quinquedentatus, rarius ſexdentatus: dentibus obſoletis, acutis.

Corolla coriacea, ſeſquipollicaris, pilis minutis adpreſſis tomentoſa. Limbi laciniæ lanceolatæ, obtuſæ, longitudine tubi.

Filamenta breviſſima. Antheræ lineares, faucem parum ſuperantes.

Germen pentagonum. Stigma bifidum.

Capſula cylindrica, bipollicaris, glabra, baſi parum anguſtior. Valvulæ diſſepimenti baſi apiceque ſinu magis hiantes.

CIN-

CINCHONA CARIBÆA, Pl. 4.

** Corollis glabris, ſtaminibus exſertis.

Cinchona pedunculis axillaribus unifloris.

Cinchona caribæa. Lin. Spec. 245. Syſt. 214. Reich. 477. Jacqu. Amer. 61. t. 169. t. 95. Pict. 35. t. 63. Obſ. 2. 27. t. 47. Vahl. in Act. Havn. 1. 1. p. 21. Swartz. Obſ. 72. Gærtn. Fruct. 1. 169. Pluk. Phyt. t. 103. f. 3. Plenck. Ic. t. 132. Vit. Sum. Pl. vol. 1. p. 461.—Mill. Dict. Mart. Murr. App. Medic. vol. 1. p. 339.

Cinchona jamaicenſis, ſeu caribbeana. Wright in Philoſ. Tranſ. vol. 67. p. 504. 506. t. 10.

Habitat in Caribæis.

Rami inferne teretes, cortice cinereo; ſuperne ſubcompreſſi, fuſco-purpuraſcentes, punctis cinereis adſperſi.

Folia petiolata, ſeſquipollicaria, ovata, acuminata, integerrima, glabra, venoſa.

Petiolus vix ſemiunguicularis.

Stipulæ parvæ, acuminatæ, latiores quam longæ, ciliatæ.

Pedunculi

Cinchona caribæa.

Frid. Bauer del.

J. Barlow, sculp.

Cinchona corymbifera.

Ferd: Bauer del.

J. Barlow sculp.

Pedunculi axillares, ſolitarii, oppoſiti, longitudine petioli.

Calyx margo quinquedentatus: dentibus minutis.

Corolla bipollicaris, glabra. Laciniæ limbi lineares, longitudine tubi.

Stamina longitudine corollæ.

Stylus longitudine ſtaminum. Stigma incraſſatum, indiviſum.

Capſula oblonga, glabra, lævis.

CINCHONA CORYMBIFERA, Pl. 5.

Cinchona foliis oblongo-lanceolatis, corymbis axillaribus. Lin. Syſt. 214. Suppl. 144. Forſter in Nov. Act. Upſ. 3. 175. Flor. Auſtral. N. 88. Vahl. in Act. Havn. 1. 1. p. 22. Mill. Dict. Mart. Vit. Sum. Plant. vol. 1. p. 461.

Habitat in Inſulis Tongatabu & Eaove Maris Pacifici.

Folia petiolata, palmaria, acuminata, integerrima, glabra, ſaturate viridia, nervo ſubtus purpureo.

Petiolus vix uncialis.

Stipulæ membranaceæ, acutæ.

Pedunculi ſolitarii, axillares, apice compreſſiuſculi, longitudine foliorum.

Corymbus trichotomus, magnus. Forſt. l. c.

CINCHONA LINEATA, Pl. 6.

Cinchona panicula terminali, foliis ovatis acuminatis glabris. Capſulis pentagonis. Vahl. in Act. Havn. 1. p. 22. t. 4. Mill. Dict. Mart.

Habitat in St. Dominica.

Rami inferne teretes, cortice cinereo; ſuperne purpuraſcentes.

Folia breviſſime petiolata, ſeſquipollicaria, ovata, acuminata, minime nitida, obtuſiuſcula, ſupra ſecundum nervos lineata.

Stipulæ ovatæ, acutæ.

Panicula terminalis, trichotoma: Pedunculi compreſſi, triflori.

Bractea ſetacea ad baſin pedicellorum.

Calycis dentes ſetacei, longitudine germinis.

Corolla & Stamina ut in inſequente.

Germen pentagonum.

Cinchona lineata.

J. Barlow Joulp.t

Cinchona floribunda P.

Ferd. Bauer del. *J. Barlow Sculp.*

Differt a C. floribunda foliis minime nitidis, basi rotundatis, minoribus, supra lineatis. Panicula parva: laciniis calycis setaceis longitudine germinis. Capsulis lineis quinque elevatis, nec lævibus.

CINCHONA FLORIBUNDA, Pl. 7.

Cinchona panicula terminali, capsulis turbinatis lævibus, foliis ellipticis acuminatis. Swartz. Prod. 41. Vahl. in Act. Havn. 1. 23. Philos. Transf. vol. 74. p. 452—456. t. 19.

C. montana. Magaz. Bot. 6. 96. t. 3.

Kinkina Piton. Act. Nat. Cur. 1787. Rozier Journ. de Phys. 1781. p. 169—179. and 1789, p. 129—132. t. 1. Mill. Dict. Mart. Murr. App. Medic. vol. 1. p. 941.

Habitat in St. Lucia, Martinica, Hispaniola.

Tota glaberrima.

Rami inferne teretes, superne obscure tetragoni, purpurascentes.

Folia Coffeæ arabicæ petiolata, sæpe spithamæa, patentissima, lanceolato-elliptica supra lævia, nitida, medio sulco exarata, subtus pallidiora, venosa, nervosa: nervis obliquis parum elevatis.

Petiolus semipollicaris, subtus convexus.

Stipulæ oblongæ, obtuſæ, vaginantes.

Panicula terminalis, brachiata, patens. Pedunculus communis alternatim compreſſus, ſub ramificationibus parum compreſſus.

Pedunculi partiales & pedicelli compreſſi.

Calyx margo ſuperus; dentibus ſubulatis, breviſſimis.

Corolla Cinch. caribææ; tubo pollicari: Laciniæ limbi lineares.

Filamenta capillaria, longitudine limbi.

Stylus longitudine filamentorum. Stigma ovatum, indiviſum.

Capſula unguicularis, obovata.

CINCHONA BRACHYCARPA, Pl. 8.

Cinchona panicula terminali, capſulis obovatis coſtatis, foliis ellipticis obtuſis. Vahl. in Act. Havn. 1. p. 24. Swartz. Prod. 42. Mill. Dict. Mart.

Habitat in Jamaica.

Folia fere ut in macrocarpa, at ſicuti tota planta glabra, breviſſime petiolata.

Flores

Cinchona brachycarpa?

Ferd. Bauer del.

J. Barlow, Sculp.t

Cinchona angustifolia.

Ferd. Bauer del.

J. Barlow, sculp.

Flores duplo minores quam in præcedente.

Capſula obovata, lineis decem elevatis coſtata.

CINCHONA ANGUSTIFOLIA, Pl. 9.

Cinchona panicula terminali, capſulis oblongis pentagonis, foliis lineari-lanceolatis pubeſcentibus. Swartz. Prod. 42. Act. Holm. 1787. p. 117--123. t. 3. Vahl. in Act. Havn. 1. p. 25.

Habitat in Hiſpaniola.

Rami cortice cinereo. Ramuli ſimpliuſculi, pubeſcentes.

Folia petiolata, acuminata, obtuſiuſcula, ſubtus pubeſcentia.

Petioli breves, pubeſcentes.

Stipulæ ovatæ, acutæ.

Panicula trifida vel trichotoma. Pedunculi pedicelli villoſo-pubeſcentes.

Calyx pubeſcens: dentibus ſubulatis, longitudine germinis.

Corolla Cinchonæ caribææ, at longior.

Stigma incraſſatum, oblongum, integrum.

Capſula oblonga, teretiuſcula. Schwartz. l. c.

Mr.

MR. BROWN'S LETTER.

SIR,

HAVING been informed of your intention of publiſhing an account of the different ſpecies of the genus Cinchona, permit me to preſent you with a ſpecies of Peruvian Bark new at leaſt to me, and which I believe is very little known in this country *.

In the year 1793 I was engaged to go Surgeon of the Speedy Tranſport, Captain Thomas Melvill, belonging to Mr. Enderby and Sons, Paul's-Wharf, London. We were firſt bound to New South Wales with proviſions, and afterwards on the Sperm whale fiſhery along the coaſts of Chili and Peru. While fiſhing near the Gallapagoe iſlands, our crew unfortunately being ſeized with the ſea ſcurvy, it was found abſolutely neceſſary to make the main in order to refreſh them. The Captain intended Manta for this purpoſe, a ſmall Indian village lying to the ſouthward of the Equator; but the wind and current baulking us, we were obliged to bear away and run for Tecamez, another Indian village, ſituated in 46 miles north latitude, and probably near 80 degrees weſt longitude. Here

* This appears certain from a collation of the leaves with all the ſpecies, preſerved in Sir Joſeph Banks's Herbarium, with none of which they agree. A moſt faithful repreſentation of theſe leaves is given at plate 11.

we

Leaves of the Bark Tree, of Tecamez.

Fred Bauer del. *J. Barlow sculp.*

we lay for ten days, until our people were moſtly recovered.

As the province of Quito, to which Tecamez belongs, is celebrated for producing the Peruvian Bark, I confeſs I was uncommonly anxious to ſee a tree ſo juſtly valuable for its various medicinal virtues. But the ſort commonly uſed in Europe grew more in the interior parts of the country than the places I viſited; and my attention was called to a new ſpecies, which I was informed had been found ſingularly efficacious by the medical gentlemen in South America. As the maſter of the ſhip who gave me the intelligence, and who traded in it, was unfortunately to ſail the next morning, he firſt very obligingly agreed with an Indian to take and ſhew me the tree, and at the ſame time ſpoke to the Governor in my favour, who kindly promiſed to ſupply me with a ſmall quantity of its beſt kind—a promiſe he afterwards very generouſly performed.

That attention which was due to the ſtate of our ſick prevented me from many enquiries that otherwiſe might have been made on the ſubject; but from the limited opportunities I had of making obſervations, Tecamez Bark ſeems to be all of one ſpecies, as the trees I examined were of the ſame kind, and the fineneſs of their bark was eſtimated by the age of the tree. Young trees of two years old were much valued, their Bark being thin, brittle, aromatic and aſtringent.

aſtringent. That of old trees is thicker; when dried turns blackiſh on the inſide, and of a darkiſh red in the middle. The other when broke is of a paler red, but all of them when left to dry in the ſun twiſt themſelves cloſe together, and turn very dark on the inſide. This circumſtance, however, may be eaſily prevented; for, by peeling off the thin inſide ſkin as it is taken from the tree, and expoſing the Bark not too haſtily to the ſun, it will aſſume a fine cinnamon colour, and appear very handſome to the eye.

Notwithſtanding the predilection in favour of the young tree, I am apt to ſuppoſe its Bark poſſeſſes only an imaginary virtue. When reduced to powder, both are ſo nearly alike, that it is extremely difficult to diſtinguiſh them: and in whatever form it is given, they are equally powerful and efficacious. A gentleman of ſome eminence told me that he thought them a tenth ſtronger than the Cortex uſually ſold in London. As I had ſome of the latter in ſubſtance from the Hall, whoſe genuineneſs I knew could be depended upon, the following is an obſervation or two I made on that ſubject. Tecamez Bark differs from that ſold by the Hall in colour, ſtrength and taſte. Its colour is more a browniſh green, ſpread over with a whitiſh moſs; the inſide darker, and of a deep red inclinable to black. When broke it appears of a pale red, and has a moſt pleaſant bitter taſte, rather aromatic, but not ſo aſtringent as that I had in the

medicine

medicine cheſt. When boiled however with the ſame quantity of water, or infuſed in it when cold, its ſtrength is ſuperior, and its taſte far more agreeable. If its virtues are drawn off by ſpirits, they equal that I had from the Hall, and in four caſes ſat eaſy upon the ſtomach, when the other did not. As many of our people unhappily laboured under a ſevere ague on our return, I thought that a proper opportunity of trying their effects; for, whatever may be advanced to the contrary, experience has taught me that in many inſtances Bark is highly ſerviceable in this diſorder. Having ſelected two people with the ſame ſymptoms, I gave it to them in equal doſes, and by the uſe of Tecamez Bark one recovered a week before the other. I tried it again—the difference was five days. I had only an opportunity of repeating it a third time, and it was ſeven. But I would not wiſh to be underſtood as if I thought theſe few caſes ſufficient to aſcertain its ſuperior effects with certainty. That muſt be left to future experiments, and to gentlemen of greater penetration, and who have more ample opportunities of making them than the writer of this article can pretend to poſſeſs.

All the trees I ſaw grew on the ſide of a hill, and in a dry barren ſoil. The mould was of a red colour intermixed with ſmall ſtones, and not above a foot deep; for ſeveral of their roots appeared at the ſurface, and few that I examined were covered more than two inches by the earth. None of them were in bloom in Auguſt, nor

had the leaſt appearance of ſeed. Neither could I obtain any of it at Tecamez. This is an article they ſet very little value on themſelves, and are wonderfully ſurpriſed it ſhould be enquired after. Of the tree indeed they are more careful, and very cautious in ſhewing it. Had it not been for the friendſhip of the gentleman I mentioned, it is more than probable I ſhould have returned without ſeeing it at all.

I remarked that all the Bark Trees I ſaw grew on the ſide of a hill, and in a dry rocky ſoil. None of them exceeded two feet in circumference, nor any of them 24 feet in height. The mode the Indians uſe in ſtripping the tree, is by making longitudinal inciſions in the bark about two inches broad, and two feet long. They then tie it up in bundles, thirty-two pounds each, and keep it in that ſtate for a day or two. Their reaſon for tying it up in this manner is to prevent its too haſtily drawing itſelf together by the heat, though it labours under a great diſadvantage of appearing iron-coloured, and not ſo handſome to the eye as when it is at once expoſed to the ſun, and regularly turned and dried. Indeed, in drying Bark great care ought to be taken that it is not put away too ſuddenly. It ſhould be perfectly criſp, and break ſhort in two—it is then fit for uſe.

Their method of conveying it from one place to another is by ſtowing it in large leathern trunks. When the trunk is damp it is apt to get mouldy: but this they conſider as of ſmall importance; for by drying it in the ſun its mouldineſs

dineſs in a ſhort time diſappears, and they affirm its virtues are not at all leſſened by ſuch an accident. The price it fetches at Guayuil is 1s. 3d. per pound, while the common ſort ſells at 1s.

Tecamez Bark is uſed for all diſorders in which the common Peruvian Bark is found ſerviceable; but it is imagined to poſſeſs a peculiar efficacy in removing indigeſtion, weakneſs of the ſtomach, and in reſtoring a debilitated conſtitution. It is alſo ſaid to be powerful in repelling all tendencies to mortifications, and to be highly ſerviceable in ſeminal weakneſſes and gleets—a complaint to which the inhabitants of South America are not a little ſubject.

The mode of giving Tecamez Bark is various, and depends in a great meaſure upon the diſeaſe for which it is preſcribed. As it ſits eaſy upon the ſtomach and creates little or no nauſea, it may be exhibited in any form that is moſt agreeable. A Surgeon of great eminence told me the beſt mode of uſing it was in a cold infuſion. He poured ſixteen ounces of cold water over one ounce of the Bark coarſely powdered, and let it ſtand four hours. He ſometimes ſimmered it afterwards over a ſlow fire for ten minutes, and, having ſtrained the decoction, added two ounces of ſpirits, and gave three table ſpoonfuls occaſionally. But very often he omitted boiling it, and, having added the ſame quantity of ſpirits, gave the cold infuſion as I have mentioned.

Such, Sir, are a few hafty obfervations on this new fpecies of Peruvian Bark. They are very limited, I confefs; for my opportunities of enquiry were not only few, but fometimes interrupted. If, however, they awake the attention of Gentlemen, who are not only more capable of treating the fubject, but have better opportunities of trying its effects than I can pretend to be poffeffed of, my intention in fending you thefe trifling and imperfect hints will be fully anfwered.

I have the honour to be, Sir,

With due refpect,

Your moft obedient Servant,

D. BROWN.

Dec. 5, 1796.

P. S. I omitted to mention, that upon my arrival at Lifbon I was informed of the Yellow Bark being in great repute, and was favoured with the fenfible and ingenious effay that has been written on the fubject. It occurred to me that this new Bark might be of the fame fort; and I fhewed it to Mr. Baker, an Engliſh Surgeon of the moft extenfive practice in the place, who likewife gave a fpecimen of it to the firft Phyficians in that city. Upon an accurate examination they found it a very diftinct fpecies, and of a kind they had never feen. They told me they did not think any of it before had been brought to Europe.

The

The Sandal Tree* likewiſe abounds at Tecamez, and is moſtly found in the ſame ſoil as the Bark Tree. Its gum is uſed by the Spaniards for perfuming their chambers—incenſing the altar at high maſs, and in many other religious ceremonies. The Indians likewiſe uſe its leaves by rubbing them between their hands, and applying them bruiſed to their temples, as a certain cure for the head-ach after ſevere drinking. The Boldu is alſo uſed in the ſame manner for this purpoſe. Whether the Sandal Tree is the ſame whoſe gum is ſo valued for religious purpoſes in the Eaſt Indies (as I was informed it was), or whether it is a diſtinct ſpecies of itſelf, I am unfortunately not verſed enough in botanical reſearches to determine.

* A different plant from the Sandal Wood of the Eaſt Indies (*Sirium myrtifolium* Lin.), as appears by a ſpecimen of the wood brought over by Mr. Brown, and now in my poſſeſſion: this wood, which abounds with reſin, has very much the ſmell, when burnt, of the Yellow Gum of Botany Bay.

CIN-

CINCHONA LONGIFLORA, Pl. 12*.

Cinchona pedunculis axillaribus unifloris, foliis linearilanceolatis glabris, corolla longiſſima.

Cinchona Caribæa? Journ. de Phyſ. Oct. 1790. p. 243. t. 1 †.

Habitat in Guiana.

CINCHONA SPINOSA, Pl. 13.

Cinchona foliis minimis ſubrotundis, pedunculis unifloris, corollis glabris quadrifidis tetrandris, ſeminibus ſubemarginatis.

Folia aliquando bina oppoſita, aliquando terna verticillata.

Lin. Syſt. Veg. Gmel. p. 361.

Vavaſſeur, Journ. de Phyſ. Oct. 1790 p. 243. t. 2.

Habitat in Domingo—Baron de Beavais.

* From a ſpecimen in Aublet's Herbarium, now in the poſſeſſion of Sir Joſeph Banks.

† This appears to be a very different plant from *Cinchona Caribæa* Lin.

Figures 1, 2, 3, 4, 5, 6, are taken from Tab. above quoted in the Journ. de Phyſique.

The

Cinchona longiflora.

Fred: Bauer del.

J. Barlow sculp.

Cinchona spinosa?

J. Barlow sculp.

The virtues of the genus Cinchona are ſo well deſcribed in Dr. Woodville's excellent publication, intitled *Medical Botany*, that we have taken the liberty to copy the Doctor's account with ſcarce any material alteration. It is as follows, viz.

WE ſeem to have no ſatisfactory account at what time, or by what means, the medicinal efficacy of the Peruvian Bark, which is now ſo well eſtabliſhed, was firſt diſcovered. Some contend that its uſe in intermittent fevers was known to the Americans long before the Spaniards poſſeſſed Peru, but that they concealed this knowledge from the Europeans ; and, on the contrary, it is aſſerted by others, that the Peruvians never ſuppoſed it to be fit for any medicinal uſe, but thought that the large quantities exported thence were for the purpoſe of dyeing, and they actually made ſome trials of its effects in this way *. Condamine ſays, that according to an ancient tradition, the Americans owe the diſcovery of this remedy to the lions, which ſome naturaliſts pretend are ſubject to a kind of intermitting fever, of which they were obſerved to be cured by inſtinctively eating the Bark of the Cinchona. But Geoffroy ſtates, that the uſe of the Bark was firſt learned from the following circumſtance :—Some Cinchona trees being thrown by the winds into a pool of water, lay there till the water became ſo bitter that every body refuſed to drink it. However, one of the neighbour-

* Ulloa, Voyage de l'Amerique meridionale, t. i. p. 271.

ing

ing inhabitants being ſeized with a violent paroxyſm of fever, and finding no other water to quench his thirſt, was forced to drink of this; by which he was perfectly cured. He afterwards related the circumſtance to others, and prevailed upon ſome of his friends who were ill of fevers to make uſe of the ſame remedy; with whom it proved equally ſucceſsful*. The uſe of this excellent medicine, however, was very little known till about the year 1638; when a ſignal cure having been performed by it on the Spaniſh viceroy's lady, the Counteſs del Cinchon, at Lima, it came into general uſe, and hence was diſtinguiſhed by the appellation Pulvis Comitiſſæ, or the Counteſs's Powder; alſo called, Cortex china china, or chinchina; kina kina, or kinkina; and quina quina, or quinquina. On the recovery of the Counteſs ſhe diſtributed a large quantity of the Bark to the Jeſuits, in whoſe hands it acquired ſtill greater reputation, and by them it was firſt introduced into Europe †, and hence called Cortex, or Pulvis jeſuiticus, Pulvis Patrum; and alſo Cardinal de Lugo's Powder, becauſe that charitable prelate bought a large quantity of it at a great expence for the uſe of the religious poor of Rome.

" This Bark is brought to us in pieces of different ſizes, ſome rolled up into ſhort thick quills, and others flat: the outſide is browniſh, and generally covered in part with a

* Mat. Med. Traité, p. 78.

† Louis the Fourteenth, when Dauphin, was ſaid to be one of the firſt in Europe who experienced its efficacy.

whitiſh

whitiſh moſs: the inſide is of a yellowiſh reddiſh or ruſty iron colour. The beſt ſort breaks cloſe and ſmooth, and proves friable betwixt the teeth: the inferior kinds appear when broken of a woody texture, and in chewing ſeparate into fibres. The former pulverizes more eaſily than the latter, and looks, when powdered, of a light-browniſh colour, reſembling that of cinnamon, or ſomewhat paler. It has a ſlight ſmell, approaching as it were to muſtineſs, yet ſo much of the aromatic kind as not to be diſagreeable. Its taſte is conſiderably bitter, aſtringent, very durable in the mouth, and accompanied with ſome degree of aromatic warmth, but not ſufficient to prevent its being ungrateful *."

Beſides this Bark, that of ſeveral other ſpecies of Cinchona have been recommended for medical uſe by different authors, eſpecially the Cortex peruvianus ruber, or red Bark; alſo that of the Cinchona caribæa, or the Jamaica Bark; that of Cinchona floribunda produced at St. Lucie; and that of two or three other ſpecies diſcovered at Santa Fé. The firſt of theſe "is in much larger and thicker pieces than the common; moſt of the pieces are concave, though not rolled together like the quilled Bark. They break ſhort, like the beſt common Bark, and appear evidently compoſed of three layers. The outer is thin, rugged, frequently covered with a moſſy ſubſtance, and of a reddiſh-brown colour. The middle is thicker, more

* Lewis, M. M. p. 485.

compact, and of a darker colour: it is very brittle and resinous. The innermoſt layer is more woody and fibrous, and of a brighter red. In powdering this Bark, the middle layer, which ſeems to contain the greateſt proportion of reſinous matter, does not break ſo readily as the reſt; a circumſtance to be attended to, leſt the moſt active part ſhould be left out of the fine powder. This red Bark to the taſte diſcovers all the peculiar flavour of the Peruvian Bark, but much ſtronger than the common officinal ſort. An infuſion in cold water is intenſely bitter, more ſo than the ſtrongeſt decoction of common Bark. Its aſtringency is in an equal degree greater than that of the infuſion of common Bark, as is ſhewn by the addition of martial vitriol. The ſpirituous tincture of the red Bark is alſo proportionably ſtronger than that of the pale. The quantity of matter extracted by rectified ſpirit from the powder of the former was to that from the latter as 3 to 2 in one experiment, and as 229 to 130 in another; and yet on infuſing the two reſiduums of the firſt experiment in boiling water, that of the red Bark gave a liquor conſiderably bitter, and which ſtruck a black with martial vitriol; while that yielded by the other, was nearly taſteleſs and void of aſtringency *."

Reſpecting the medicinal properties we have ſeveral reſpectable authorities, ſhewing, that as the red Bark poſſeſſes the ſame virtues with the common, in a much higher

* Lewis, l. c.

degree,

degree *, ſo it has been found of more efficacy in the cure of intermittents: and hence it is thought to be that which, according to Arrot, the Spaniards called Caſcarilla colorada, and was probably the kind originally brought to Europe, and which proved ſo ſucceſsful in the hands of Sydenham, Morton, and Liſter; for it appears from the teſtimony of the oldeſt practitioners, that the Bark firſt employed here was of a much deeper colour than the common Bark †. The red Bark was firſt imagined by Dr. Saunders ‡ to be that of the trunk of full grown trees, the branches or young trees of which yield the pale or common Bark: but this opinion the Doctor ſeems afterwards to have abandoned; for in the third edition of his pamphlet on this ſubject he ſays, "that he has lately ſeen ſome exceedingly good red Bark imported by a Spaniſh merchant, a conſiderable part of which was as ſmall as the quilled Bark in common uſe, &c. It was extremely reſinous, and gave evident proofs of its being the quill of the larger red Bark which was in the ſame cheſt." If the pale and red Bark were really the produce of the ſame ſpecies of Cinchona, the latter differing from the former only by acquiring greater maturity, we ſhould find the deepneſs of the colour of the pale Bark to correſpond proportionably with its thickneſs or the ſize of the quill, which is certainly not the caſe. The Cinchona caribæa is deſcribed

* Irving's and Skeete's Experiments.

† Baker, Med. Tranſ. vol. iii. p. 161.

‡ Obſervations on the ſuperior efficacy of the red Peruvian Bark in the cure of fevers.

and figured by Jacquin * and Dr. Wright †; it grows in Jamaica, where it is called the Sea Side Beech. According to Dr. Wright, the Bark of this tree is not leſs efficacious than that of the Cinchona of Peru, for which it will prove an uſeful ſubſtitute; but by the experiments of Dr. Skeete it appears to have leſs aſtringent power ‡. The Cinchona floribunda, or Bark tree of St. Lucie, a figure of which we find in Phil. Tranſ. alſo in Rozier's Obſervations ſur la Phyſique, affords a Bark which is likewiſe ſaid to have been uſed with advantage; but notwithſtanding all that has been written to eſtabliſh its medicinal character §, it ſeems to us greatly inferior to that of the other ſpecies of this genus. In its recent ſtate it is conſiderably emetic and cathartic; properties, which in ſome degree it retains on being dried; ſo that the ſtomach does not bear this Bark in large doſes, and in ſmall ones its effects are not ſuch as to give it any peculiar recommendation. Several ſpecies of Cinchona have lately been diſcovered at Santa Fé, yielding Barks both of the pale and red kind; and which, from their ſenſible qualities, are likely upon trial to become equally uſeful with thoſe produced in the kingdom of Peru ‖.

* Amer. Pict. tab. 23.

† Phil. Tranſ. vol. 67.

‡ Exper. p. 339.

§ See Kentiſh. Exp. and Obſerv. on the Peruvian Bark. Davidſon in Phil. Tranſ. vol. 74. and Tranſ. of the American Phil. Soc. vol. 2. Mallet in Mem. ſur le Quinquina de la Martinique, &c.

‖ See Memoria o Diſſertazione ſopra la nuova China del regno de St. Fé, &c.

At preſent the uſe of the Bark is chiefly confined to the pale and red kind; and the nearer the former reſembles the latter, the more it is eſteemed.

" The Peruvian Bark yields its virtues both to cold and boiling water; but the decoction is thicker, gives out its taſte more readily, and forms an ink with a chalybeate more ſuddenly than the freſh cold infuſion. This infuſion, however, contains at leaſt as much extractive matter, but more in a ſtate of ſolution; and its colour on ſtanding with the chalybeate becomes darker, while that of the decoction becomes more faint. When they are of a certain age, the addition of a chalybeate renders them green; and when this is the caſe, they are found to be in a ſtate of fermentation, and effete. Mild or cauſtic alkalies, or lime, precipitate the extractive matter, which in the caſe of the cauſtic alkali is re-diſſolved by a farther addition of the alkali. Lime-water precipitates leſs from a freſh infuſion than from a freſh decoction; and in the precipitate of this laſt ſome mild earth is perceptible. The infuſion is by age reduced to the ſame ſtate with the freſh decoction, and then they depoſit nearly an equal quantity of mild earth and extractive matter; ſo that lime-water as well as chalybeate may be uſed as a teſt of the relative ſtrength and periſhable nature of the different preparations, and of different Barks. Accordingly, cold infuſions are found by experiments to be leſs periſhable than decoctions; infuſions and decoctions of the red Bark, than thoſe of the pale: thoſe of the red Bark, however, are found by length

of

of time to ſeparate more mild earth with the lime-water, and more extracted matter. Lime-water as precipitating the extracted matter appears an equally improper and diſagreeable menſtruum. Water has been found to ſuſpend the reſin by means of much leſs gum than has been ſuppoſed. Rectified ſpirit of wine extracts a bitterneſs, but no aſtringency, from a reſiduum of twenty affuſions of cold water; and water extracts aſtringency, but no bitterneſs, from the reſiduum of as many affuſions of rectified ſpirit. The reſidua of both are inſipid *."

From many ingenious experiments made on the Peruvian Bark by Dr. Irving, publiſhed in a Diſſertation which gained the prize-medal given by the Harveian Society of Edinburgh in 1783, the power of different menſtrua upon Peruvian Bark is aſcertained with greater accuracy than had before been done: and it appears, that, with reſpect to comparative power, the following fluids act in the order in which they are placed: Dulcified ſpirit of vitriol: Cauſtic lye: French brandy: Rheniſh wine: Soft water: Vinegar and water: Dulcified ſpirit of nitre: Mild volatile alkali: Rectified ſpirit of wine: Mild vegetable alkali: Lime-water. The antiſeptic powers of vinegar and Bark united are double their ſum taken ſeparately. The aſtringent power of the Bark is increaſed by acid of vitriol; the bitter taſte is deſtroyed by it.

* Ed. New Diſpenſ. p. 251.

Though the Bark on its firſt introduction, and even ſome time afterwards, was reprobated by ſome eminent phyſicians as a dangerous remedy; yet theſe prejudices are entirely done away, and its character is now univerſally eſtabliſhed: ſo that the diſputes which at preſent ſubſiſt are confined to its mode of operation, or the manner in which it is moſt efficaciouſly adminiſtered. To detail theſe, however, or even to give a circumſtantial relation of the various ſtates of diſeaſe in which the Bark might be advantageouſly employed, would far exceed our limits: we are therefore confined to ſtate briefly thoſe diſeaſes to which this medicine is more eſpecially adapted.

The Bark firſt acquired its reputation for the cure of intermittent fevers, and in theſe, when properly exhibited, it rarely fails of ſucceſs. For this purpoſe, ſome practitioners prefer giving it juſt before the fit, ſome during the fit, and others immediately after. Dr. Cullen, who is of the firſt opinion, ſays, "I am ſatisfied that giving a large doſe of the Bark immediately before the time of acceſſion, is the moſt proper practice: but as that doſe muſt not be under two drams of pale Bark, ſo there are ſome ſtomachs which will not bear even that quantity, or a larger that might be neceſſary. It is commonly, therefore, convenient to give ſmall doſes, but to give them every hour for ſome hours near to the times of acceſſion*."

* Mat. Med. vol. p. 97.

Some

Some again order it in the quantity of an ounce between the fits; the doſe being more frequent and larger, according to the frequency of the fits; and this mode of procedure, although it may perhaps lead to the employment of more Bark than is neceſſary, is conſidered by Dr. Duncan * as upon the whole preferable, from being beſt ſuited to moſt ſtomachs. When the Bark pukes, or purges, or oppreſſes the ſtomach, it is to be counteracted by remedies particularly appropriated to them. Thus, vomiting is often reſtrained by exhibiting it in wine; looſeneſs, by combining it with opium; and oppreſſion at the ſtomach, by the addition of an aromatic. But unleſs for obviating particular occurrences, it is more ſucceſsful when exhibited in its ſimple ſtate than with any addition.

It may be given from the very commencement of the diſeaſe without any previous evacuations, though it commonly anſwers better after emptying the alimentary canal, particularly the ſtomach; and it is to be continued not only till the paroxyſms ceaſe, but till the natural appetite, ſtrength, and complection return.

In remittent fevers, eſpecially during the times of remiſſion, the Bark may alſo be employed with great ſucceſs; for as both theſe and intermittents ariſe from the

* See New Edinburgh Diſpenſatory.

ſame

ſame cauſe, prevail at the ſame ſeaſons, and aſſume mutually the form of each other, they ſhow a ſtrict affinity, and found a preſumption which is confirmed by experience, that they may be cured by the ſame remedy. In continued fevers, or typhus of the nervous and putrid kind, the Bark is very generally uſed, as well ſuited to counteract the debility or putreſcency which marks the progreſs of the diſorder. There is, however, one ſtate not unfrequently preſent in theſe epidemic fevers, in which the Bark is found to be hurtful; i. e. ſymptoms of congeſtion, or topical inflammation of the head, manifeſted by headach, redneſs of the eyes, and phrenitic delirium. And whenever delirium is accompanied with much ſubſultus tendinum, or frequent convulſive twitchings of the limbs, Dr. Cullen thinks opium in large doſes is the only remedy to which we can truſt.

Of late the Bark has been much employed in acute rheumatiſm, particularly after the violence of the diſeaſe has been in ſome meaſure moderated by the antiphlogiſtic treatment, or when evident remiſſions take place. Many, however, have recourſe to this medicine in the firſt ſtage of the diſeaſe, and we have witneſſed its ſucceſs in ſome of the London Hoſpitals, even while the inflammatory ſymptoms prevailed to a very conſiderable degree. This ſeems contrary to the experience of Dr. Cullen, who ſays, " As I conſider this diſeaſe as eſpecially

Mo. Bot. Garden,
1896.

conſiſting in a phlogiſtic diatheſis, I hold the Bark to be abſolutely improper, and have found it manifeſtly hurtful, eſpecially in its beginning, and in its truly inflammatory ſtate."

In the confluent ſmall-pox the Bark has been recommended to promote the riſing of the puſtules. This opinion our own experience teaches us to reject; but after the maturition of the puſtules is completed, or where ſymptoms of putreſcency, or a diſſolved ſtate of the blood, ſupervenes, the Bark cannot be too liberally employed. The other diſeaſes in which the Bark is recommended, are gangrenous ſore throats, and indeed every ſpecies of gangrene; ſcarletina, dyſentery, all hemorrhages of the paſſive kind; likewiſe other increaſed diſcharges; ſome caſes of dropſy, eſpecially when unattended with any particular local affection, ſcrophula, ill-conditioned ulcers, rickets, ſcurvy, ſtates of convaleſcence, certain ſtages of phthiſis pulmonalis, &c.

The officinal preparations of the Bark are the powder, the extract, the tincture, and the decoction. This laſt, though frequently employed, is in many reſpects inferior even to a ſimple watery infuſion; but the beſt form is that of powder, in which the conſtituent parts are in the moſt effectual proportion.

The

The virtues of Cinchona Macrocarpa, a new ſpecies, have been lately deſcribed by Dr. James Clarke in his Treatiſe on the Yellow Fever, where a comparative table of the quantity of ſoluble or extractive matter obtained from the different ſpecies of Bark by water and ſpirit is exhibited.

HYÆNANCHE GLOBOSA, Pl. 10.

HYÆNA POISON.

DIŒCIA POLYANDRIA.

Syn. Iatropha globoſa Gærtn. vol. 2. p. 122. t. 109.

Croton foliis craſſis, venoſis, venis rubentibus, Burm. Afric. p. 122. t. 45.

Arbor parva, ſex aut ſeptem pedes alta, ramis diffuſis.

Cortex cinereo-fuſcus, rugoſus, articulatus, cicatricibus ad articulos notatus quo petiola foliorum antea exiterant.

Folia verticillata, terna vel ſæpius quaterna, petiolo brevi canaliculato, ovato-oblonga, emarginata, integerrima, lævigata, nervoſo-reticulata, revoluta.

Feminei flores in axillis foliorum pedunculis multifloris brevibus.

Calyx ſquamoſus, imbricatus, ſquamulis ovato-acuminatis apice ſcarioſis, deciduis.

Corolla

Fred Bauer del.

Hyænanche globosa.

J. Barlow sculp.

Corolla nulla.

Pericarpium capſula corticata, ſuberoſa, quadricocca, coccis lignoſis bivalvibus diſpermis.

Styli 2 aut 4.

Stigmata quatuor reflexa, glanduloſa, fimbriata.

Semina duo in unaquaque cocca, ovata, compreſſa, glabra, umbilico ſuberoſo.

Maſculi flores in axillis foliorum racemis congeſtis numeroſis ſubſeſſiles.

Calyx polyphyllus, foliolis ovatis, concavis coloratis (Calyculatus ſquamis ad baſin foliorum?).

Corolla nulla.

Filamenta numeroſa brevia: Antheræ ſubrotundæ didymæ.

This ſhrub grows about two hundred miles from the Cape, in a rocky ſoil, on a ſingle ſpot, on Wind-Hook Mountains, near Elephants' River.

A farmer lives there, who collects the fruit, by which

he makes a profit of about 20 l. per annum, by ſelling it for the purpoſe of poiſoning hyænas. The fruit is pounded into a powder, and adminiſtered in the ſame manner as the Nux Vomica. The powder is put into the carcaſes of lambs, &c. which are laid where the hyænas are known to come. By eating the fleſh they are infallibly deſtroyed.

This plant flowers and bears fruit annually in the ſtove of the Right Honourable the Earl of Tankerville, at Walton, the only place it has yet flowered at in this country; and I believe it is in no other collection in England except at Kew. Our figure of the female was drawn from the plant in his Lordſhip's ſtove in 1795; the male from a ſpecimen very obligingly communicated to me by Mr. F. Maſſon.

FINIS.

ORDER OF THE PLATES.

Plate 1. Cinchona officinalis.

2. Cinchona pubeſcens.

3. Cinchona macrocarpa.

4. Cinchona caribæa.—This plate is from a ſpecimen in the Herbarium of Hen. de Ponthieu, Eſq. now in my poſſeſſion.

5. Cinchona corymbifera.—From ſpecimens and drawings in the Herbarium of Sir Joſeph Banks.

6. Cinchona lineata.

7. Cinchona floribunda.—From a ſpecimen in the Herbarium of Sir Joſeph Banks; found by Mr. Fran. Maſſon in St. Lucie.

8. Cinchona brachycarpa.—From a ſpecimen in the Herbarium of Sir Joſeph Banks.

9. Cinchona anguſtifolia.

10. Hyænanche globoſa.

11. Leaves of Tecamez Bark.

12. Cinchona longiflora.

13. Cinchona ſpinoſa.